



The Official Newsletter of the Gwinnett Amateur Radio Society
September 2021 <http://www.gars.org/> Volume 31, Issue 9



The

GARzette

September 2021 GARS Meeting: Next Gen of HF Radio Technology, Michael Walker VA3WM



The Georgia QSO Party



GARS meeting Tuesday, September 14, 2021 at 7:00 pm

President's Message

From the President...

I hope this month's GARS Newsletter finds you well. I owe a huge Thank You to our club's Vice President, Jamie KX4HA, for writing to you last month in place of our regular President's Message. I asked Jamie to write in my place because I was under the weather. Already hurting with a shoulder injury, I took a hit to my immune system which resulted in a case of Shingles. It affected my arm and whole hand, restricting my ability to use a keyboard. I'd had a case of shingles in my 20's and it was no fun then. At my current age, it was outright agony! Believe me, you don't want to get this. Among our other immunizations, I recommend discussing with your doctor the possibility of getting the one-time Shingles vaccine to save yourself of a lot of pain from this virus. End of PSA.

The Huntsville Hamfest has come and gone, and from what I hear, folks had a good time, albeit a lite turn out. It is unfortunate that we've not been able to tame this pandemic and return to the days of full-blown Hamfests. Let's hope for better Covid numbers and public attendance by the time of the Lawrenceville Hamfest. I hope to see you there.

Attention: We need a Zoom Facilitator – our current Zoom Administrator is stepping down after this month and we'll need someone to coordinate/facilitate our zoom sessions.

This person would:

- Generate the zoom sessions (pretty automatic) for the Executive and General meetings,
- Share those session credentials with the PIO Team,
- Start up the zoom meetings for everyone to use,
- Monitor the chat room for questions from the attendees in order to convey as needed.
- Ideally have an assistant to help out.



If you could manage this Zoom tool for GARS, please email: vicepresident@gars.org

Equipment For Sale by GARS - We've been given enormous donations, and with this comes opportunities that will make our financial status healthier and will better our Scholarship and Memorial funds, so that we may give

future young hams a hand in their educational goals.

Our GARS Volunteers are working hard to get the numerous Ham Radios, electronic parts, and equipment ready for the GARS family to have first crack at, with many of the items at deeply discounted prices. See our '**Equipment for Sale by GARS**' section, here in the GARZETTE.

Also, we'll have several tables in the Flea market building at the Lawrenceville Hamfest in November. So, stay tuned for additional notifications of additional items for sale and find us at the Flea Market tables inside.

While we're thinking about Hamfests, please see gars.org to find the Lawrenceville Hamfest volunteer sign up list. Or click here > [Stone Mount Hamfest Volunteer Sign Up](#)

73.

Joe Biddle, AD4PZ

Club President

GARS Meetings & Workshops

GARS Meetings and Workshops

GARS Meetings are held in-person at the EAA 690 Hangar. Workshops will be held online via Zoom along with simulcast Meetings. See <http://www.gars.org> for more information

GARS Virtual Login and Zoom Etiquette

Zoom login info will be posted to <http://www.gars.org> prior to the meeting.

Meetings and Workshops are OPEN to all, feel free to share your invite with others.

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName Call Sign**, e.g. **Hiram W1AW**
- [How to change Your Display Name in Zoom](#)
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat.**

GARS Meetings Schedule (second Tuesday @ 7:00 PM):

- September 14, 2021 – Software Defined Radio – Michael Walker VA3MW – FlexRadio Systems
- October 12, 2021 – Favorite Ham Radio and Related Websites – Bill Cherepy WB4WTN – Operational – In-Person and Zoom
- November 9, 2021 – Current status of the HamSCI projects – Dr. Nathaniel A. Frissell Ph.D. W2NAF

Workshop Schedule (third Tuesday @ 7:00 PM):

- September 21, 2021 – Portable and Whole House Backup Generators – Kerby Spruiell KG5DLD
- October 19, 2021 – GARS Repeater System – David Adcock KA4KKF
- November 16, 2021 - TBD (Your chance to volunteer and tell us about your ham radio project)

GARS Meeting – September 14, 2021

Michael Walker VA3WM - An Overview in Next Generation of HF Radio Technology



Mike was licensed in 1974 and has always loved technology. His first 'real' job with IBM was working on an actual Tube computer that had 64,000 tubes in NORAD that was 600ft underground (SAGE) at the height of the cold war. He has always loved ham radio and all the parts of Ham radio. HF, FM, Satellite, and lately how to build a better remote HF station. Over the past 15 years, he has worked continuously to improve his HF remote station. Over the past 4 years, he has been working full time for FlexRadio Systems in a variety of roles including inside sales, customer education, and marketing, and loving it and all the amazing people at the company.

Over the past 50 years, HF radio has had about 4 changes in development technology. Software Defined Radio (SDR) technology is technology in use today. We now get much better radio performance for our investment dollar. Mike will explain why the Software Defined Radio now outperforms the traditional SuperHet radio design.

GARS Workshop – September 21, 2021

Kerby Spruiell KG5DLD - Portable to Whole House Backup Generators



Kerby is the President of the Austin Amateur Radio Club and past Emergency Coordinator for Travis Co ARES. He is a member of Infragard, a partnership between the FBI and the private sector to protect the critical infrastructure of the United States. Of the 16 critical infrastructure sectors defined in Presidential Policy Directive 21, his focus is on Communications. All 16 infrastructure sectors rely on the power grid to function normally.

The presentation to GARS is on backup power generator options for your family/home with a focus on; type of generator, generator size, fuel options, and costs. The presentation will include a Q&A period to help you select the generator option appropriate for your needs and budget. In the aftermath of Texas' [Snowmageddon](#) Kerby has upgraded his portable generator to a whole house generator.



The

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GARS Communication

| | |
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| 2 Meter Repeaters 147.075(+) MHz Tone 82.5 147.255(+) MHz Tone 107.2 1.25 Meter Repeater 224.580(-) MHz Tone 100.0, 1.6 MHz Offset 70 Cm Repeaters 444.525(+) MHz Tone 82.5 442.100(+) MHz Tone 100 442.325(+) MHz Tone 100 | 6 Meter Repeater 53.110 (-1 MHz) No Tone (Offline for Maintenance) Other Resources: APRS 144.390 -- 1200 Baud W4GR D-STAR WD4STR 145.060 + (1.4 MHz) 440.550 + (5 MHz) |
|---|--|

**Don't forget
to support our
advertisers at the
back of the
GARzette.**

Snail Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

Notable Web Links

Ham Radio Glossary: <https://noji.com/hamradio/glossary.php> a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

Need Help – Let GARS Elmers answer your questions

Send an email to elmers@gars.org with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.

For additional information view our Website at: <http://www.gars.org>

Newsletter Email: editor@gars.org Editor: Bob Hoffman, K4CQO Assistant Editor: Bill Eggers, WB2RIS



GARS HELP WANTED

Speakers Needed for GARS Workshop Presentations, 3rd Tuesday of the month – Email workshop@gars.org to volunteer. [PS— Articles to publish in the *GARzette*, either written by GARS members or published elsewhere, are always welcome. —Ed.]

GARS Happenings

20 Years ago in the September 2001 GARzette:

- GARS started a repeater sharing agreement
- GARS provided logistic support for the Buford 5K run
- The Boy Scouts Gold Rush was announced – similar to the JOTA mentioned in this month's GARzette
- GARS helped with the 8/2001 Dog Show with pictures

You can always browse the GARzette archive at <http://www.gars.org/newsletters>
73, Bob, K4CQO, GARzette Editor



Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on gars.org and use it as a means to convey information about a GARS family member or Silent Key notification.

Net Managers Corner

Monday Night 2 Meter “Want, Swap, Sell, and Information Net”

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

Out of almost 300 members, there are only seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

| | | | |
|--------------|-----------------|----------------|------------------|
| Don – KW4AL | Ray – N4GYN | Bill – WG9NUW | David – KA4KKF |
| Glen – W3WWT | Russell – AB4QQ | Chuck – KK4TKJ | Charlie – WS4TOT |

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The “Want, Swap, Sell Information Net” begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact me at KK4TKJ@arrl.net. Sign up to help support the effort that makes GARS the great club that it is. 73 and see you on the Nets!

Equipment For Sale by GARS

Our GARS Volunteers are working hard to get the numerous Ham Radios, electronic parts, and equipment ready for the GARS family to have first crack at these, with many of the items at deeply discounted prices.

Here are a couple of our GARS Silent Key Donations Volunteers: Jamie, HX4HA and Brian, N4TRB as they unload the 300+ pound Navy TDE-2 Type CAY-52267A Transmitter. Fortunately, we had access to an engine hoist. This would look great by your fireplace or imagine taking it mobile. Hi Hi

Whereas you may not have a need for this 300-pound classic, you'll probably find something that you just cannot live without in this listing.

Payment methods accepted:
Credit Card, PayPal and Cash.



To see the list of the current offering, Click here>> [GARS Silent Key Sale](#)
For additional information, send an email to: forsale@gars.org.

More to come, so stay tuned. After a short period, we'll release this list to a wider audience. So, act quickly.

JAMBOREE ON THE AIR (JOTA)

October 16th is one of my favorite events and I hope to have a good turnout this year.

Yours in Scouting,

Steve Back
WB2OGY

JAMBOREE ON THE AIR (JOTA)
October 16th from 9:00 AM – 4:00 PM
VFW Post 5255, 368 Grayson Highway,
Lawrenceville, GA 30046



This is a free event that is open to all Cub Scouts, Scouts BSA, Venturers, Sea Scouts, Girl Scouts & the general public. We will be offering a Radio Merit Badge Classes at JOTA. Come learn and have fun at JOTA 2021. JOTA is an annual Scouting event that uses amateur radio to link Scouts around the world, around the nation, and in our own community. Scouts of any age can participate, from Cub Scouts to Boy Scouts, Venturers and Girl Scouts. This is the official JOTA site of the Northeast Georgia Council Amateur Radio Club KK4BSA.

We will be offering two Radio Merit Badge Classes at JOTA. Space will be limited to 30 students. Registration is only required for the Merit Badge Class. Anyone else is free to just show up.

Flyer: <https://www.nega-bsa.org/files/38861/Jamboree-On-The-Air--JOTA->

Merit Badge Registration: <https://kk4bsa.info/register-for-radio-merit-badge.html>

Drake TR-3 Transceiver

Vintage Amateur Radio

de Bill Shadid, W9MXQ



After releasing the successful TR-3 Transceiver in 1963, Drake Radio Company came out with an updated version, the TR-4, in 1967. The TR-4 upgraded the filter system to make the filters more competitive and in the process solved some dependability problems with the filters as originally designed for the TR-3. Also, the vacuum tube PTO in the TR-3 gave way to a solid-state PTO in the TR-4. Recall that Drake used variable inductor tuning in their PTO. Most competitors used a variable capacitor for tuning, usually referred to with the term "VFO."

The TR-4 design kicked off a model that went well into the 1970's and competed successfully against the hybrid transceivers coming from Kenwood, Yaesu, and Sideband Engineers. As mentioned in the article on the TR-3, for a while this design was made in parallel with the much-touted Drake TR7 all solid-state transceiver. The TR-3/TR-4 basic design was very successful and said a lot for the engineering and design talent coming from R. L. Drake Company in Miamisburg, Ohio

This Drake TR-4 article is the second of a two-part series about Drake Vacuum Tube Transceivers. It will also include the specialized six-meter version, the TR-6 Transceiver. I urge you to also read the previous article on the TR-3 for additional information that applies to both radio series.



Drake TR-4C 80-10 Meter SSB/AM/CW Transceiver and RV-4C External VFO

(Part of the Drake Collection at W9MXQ)

The TR-4C was the last major chassis version of the TR-4 series of radios. The TR-4C (pictured above) changed the dial readout design in keeping with the "C" series of Receivers and Transmitters from Drake (the R-4C and T-4XC) in addition to many other improvements. Some of those improvements were also on late versions of the original TR-4. There were two other sub-versions of the TR-4C . . .

The TR-4CW – included provisions for adding a 500 Hz CW Filter for receive use.

The TR-4CW/RIT – which include TR-4CW features plus Receiver Incremental Tuning to further enhance the radio's capability on CW.

The RV-4C you see above is virtually identical to the earlier RV-4 except for the different dial

mechanism – in keeping with its dual disk epicyclical display which is like the drive and display on the Collins S-Line dial except the dial escutcheon area design. All the TR-3 accessories worked with the TR-4 series as well. That includes the RV-3, RV-4, and RV-4C External VFO Consoles.

Something unique about Drake – and in the industry, to my knowledge – was that the transceiver's power supply could be mounted inside the Remote VFO cabinet. Also unique was the speaker in the Remote VFO Console. Other manufacturers that offered a separate Transceiver, Speaker, and External VFO required the placement of three cabinets on the operating desk. Drake made this possible with only two cabinets.

Here are pictures of the three interchangeable External VFO Consoles offered by Drake, for your comparison . . .



RV-3 External VFO



RV-4 External VFO



RV-4C External VFO

(From the W9MXQ Drake Collection – Past and Present)

Remember that all three of the above units would work equally well with any TR-3, TR-4, TR-4C, TR-4CW, or TR-4CW/RIT Transceiver. The RV-3 and RV-4 are nearly identical. The RV-3 and RV-4 have markings every 25 kHz with 1 kHz (25 total) markings on the dual skirt – like the TR-3 and TR-4 Transceivers. The RV-4C has 1 kHz markings on the dual disk epicyclical display, like the TR-4C series of radios. As with the TR-3 Transceiver, the RV-3 used a vacuum tube oscillator. The RV-4 and RV-4C are solid-state.

There were other differences to be noted – particularly in early and late versions of the TR-4 Transceivers (pre-TR-4C). See below pictures of an early and late TR-4 . . .



Early TR-4 Transceiver:

See the area in the lower right-hand corner. It is empty except for a small aluminum color dot (it is a tiny circle). This is where the Noise Blanking switch is placed in the later TR-4. No plug-in provision is made for a Noise Blanking in the early TR-4 Transceiver. But one was available – see later in this article.



Late TR-4 Transceiver:

You can see the placement of the Noise Blanking Switch in the lower right-hand corner. That indicates internal wiring and a chassis connector for the available 34-PNB Noise Blanking. This is the only outward difference in the early and late TR-4. Internally, however, some very early TR-4's had the same 4-Pole Crystal Filter used in the TR-3. Later TR-4 Transceivers used an eight-pole filter.

The TR-4 Transceivers – all models – used three 6JB6 Television Sweep Tubes in the final amplifier section. The three tubes provided an input power of 300 watts PEP on SSB and a bit less, 260 watts, on CW. The radio would provide 260 watts PEP input power on AM with controlled carrier AM modulation providing approximately 75 watts carrier output with no modulation. Output power would be about 150 watts PEP SSB output and about 130 watts CW, key down output. 10 and 15 meters would produce somewhat less. On AM mode, there is a separate detector for clear and pleasant AM audio. Friends on AM, however could spot you as using an SSB radio as they could tune and discover that you had only one sideband. In the end, this is a SINGLE sideband transceiver!

The TR-3 used three 12JB6 tubes in the final amplifier – a major difference with the TR-4 series radios and their 6JB6 finals. These tubes are identical in performance. The 12.6-volt 12JB6 seemed appropriate given that these radios were also designed to run in 12-volt system automobiles. When the final amplifier tubes are a 6.3-volt and there are three of them, there is a bit of filament voltage and current balancing to use a 12.6-volt supply source. It is interesting to study the schematic to see how Drake ran the three 6.3-volt power amplifier tubes in the 12.6-volt power system.

Drake did offer the high performance 34-PNB Noise Blanker for late TR-4 and all TR-4C series transceivers. For TR-3 and early TR-4 radios, Drake had offered a model 34-NB Noise Blanker. Note the absence of a “P” in that model number – meaning that this was not a plug-in device. Drake provided an extensive set of instructions for a complicated installation process. One of these 34-NB Noise Blanker units is installed in a TR-4 owned by my friend, Pat, W9JI. Pat’s TR-4 has an added switch in the position shown on “Late TR-4” picture. Many owners installed a switch in that location with a matching Drake knob to make their radio look like a later TR-4. However, Drake’s installation manual for the 34-NB Noise Blanker had a different idea. See the picture below taken from the instruction manual front cover for the Drake Model 34-NB Noise Blanker Kit . . .



Picture of the Instruction Manual Front Cover for the Drake 34-NB Noise Blanker Kit

This book is a rare find. It completely covers the many areas of wiring modifications to tap the i-f of the TR-3 or TR-4. One assumes the “34” means TR-3 and TR-4 but that is hard to tell some 55 years after the fact.

Look at the PLATE control just to the right of the meter assembly and you can see a small (hard to see in this picture) stick-on label that says “ON” on top and “OFF” on the bottom. Also see the lever switch that is added concentric with the PLATE tuning shaft. The 34-NB Kit supplied parts for this location of the Noise Blanker switch. Many hams, as discussed, added a switch in the same location as on the later TR-4 and all TR-4C series Transceivers.

(W9MXQ Radio Manual Library)

Drake had a complete line of accessories for the TR-4 series transceivers that all worked

equally well with the earlier TR-3 radio. Unlike other Drake models that had little inter-series compatibility, the TR-3 and TR-4 lines were 100% compatible in all ways for interconnection.

There was a rather interesting change at the time the Drake TR-4C replaced the TR-4 and at the same time the Drake R-4C Receiver and T-4XC Transmitter replaced the R-4B and T-4XC, respectively. Drake made a subtle change in the front panel in addition to moving to an epoxy ink silk screen over the brushed, anodized front panels. Here is an example for you while looking at a late TR-4 and an even later TR-4C Transceiver . . .



Late Drake TR-4 Transceiver



Drake TR-4C Transceiver

(Pictures from W9MXQ Drake Collection - Past and Present.)

See the aluminum trim around the outer edge of the TR-4 Front Panel and the absence of that feature on the TR-4C Front Panel. Accessories that transcended this change had running changes – for instance the popular Drake MN-2000 Antenna Matching Network and the L-4B Linear Amplifier were changed – so you can find them with both front panel versions, depending on when they were manufactured.

As a collector, I like for all my units to match. Functionally, that is a ridiculous requirement – but that is what I like in any case!

Here is a rather complete setup of major accessories for the TR-3/TR-4 line of equipment. This is as it exists at W9MXQ . . .



Drake TR-4C Station at W9MXQ

Running in the 2017 Wisconsin QSO Party – (Amplifier was not used)

Left to Right – Drake Radios

MN-2000 Antenna Matching Network, TR-4C Transceiver,

RV-4C External VFO, L-4B Linear Amplifier

Left to Right – Accessories

Shure 444 Desk Microphone, MFJ-422A Electronic Keyer (With Bencher KY-1 Key)
(You will note that my MN-2000 at the time had the earlier front panel design!!)

Like the TR-3, Drake offered power, speaker, and accessory options for the TR-4 series of

radios. These accessories stayed the same through the entire production cycle of the TR-4 line. Drake even offered a specialized console to use when the TR-4 was mounted in an automobile. For these accessories, please review the pictures, below. Many of these items were updates from similar items offered for the TR-3 Transceiver. Some, however, were later designs and were unique to the TR-4 line.

Drake "4-Line" Accessories that were used with the TR-4 Transceivers . . .



MC-4 Mobile Console – Installed and Alone



MS-4 Speaker Console



**AC-4 AC Power Supply
(Mounted in MS-4 or RV-4)**



**DC-4 DC Power Supply
(For 12 VDC Operation)**



FF-1 Fixed Frequency Adapter

(Pictures above are from W9MXQ collection items – past and present – except for the MC-4 Mobile Console. MC-4 pictures are from Universal Radio, in Columbus, Ohio.)

Other accessories were also used with the very popular Drake "4-Line" Receivers and Transmitters. These are the subject of an upcoming article. Check these items that, except for the W-4 Wattmeter, are shown in the complete station setup, previously pictured . . .



**L-4B
Linear Amplifier**



**MN-2000
Antenna Matching Network**



**W-4
Wattmeter**

(From the W9MXQ Drake Collection.)

The Drake L-4B Linear Amplifier was preceded by the similar appearance L-4 Linear Amplifier.

Drake Amplifiers will be the subject of a future article. The MN-2000 shown here – a recent acquisition – is a later design without the border on the front panel. The MN-2000 is capable of full power at the time of its manufacture – that is, 2,000 watts PEP input. It is not up to the power capability of today's 1,500-watt output amplifiers in key down modes, such as RTTY. Drake made a lower power version Antenna Matching Network that was called the MN-4. The MN-4 was designed around the power level of the TR-4 with its capability to handle 200 watts PEP output on SSB. The MN-4 had a similar appearance and front panel size to the MN-2000. But the MN-4 lighter in weight and was several inches less in depth.

As mentioned in the TR-3 article, one negative in the Drake designs in early years was their copper plated chassis. A high percentage of these chassis, even with reasonable care, seem to corrode in an odd array of unsightly black and blue-green colors. Some do not do that, however, and it is hard to tell why. I had a Drake R-4B and T-4XB Receiver and Transmitter that I bought new in the late 1960's that stayed for years nearly pristine. I sold the set to a ham in Chicago who still has it. When I saw it again a few months ago it was still clean and near perfect. But that is not the norm for Drake or other brand radios with copper plated steel chassis and other hardware. With the introduction of the "C" series radios, Drake moved to a cadmium plated, clear chromate dip steel chassis and other parts. Here are some pictures to show you the difference in the two TR-4 series radios at W9MXQ right now . . .



TR-4 - Copper Plated Chassis

(On loan from W9JI)



TR-4C – Cadmium Plated Chassis

(In W9MXQ Drake Collection)

Relatively speaking, the copper plating is in "good" condition on the TR-4, above left, compared to what one can find on the market. This radio is in good operational condition and is one I hope to add to my collection. This issue faded into history with the later cadmium plating. While good chassis Drake radios can be found in this vintage, it must also be known that this does not impact good operation from the radio. The above left TR-4 works every bit as well as the rather perfect looking TR-4C on the right.

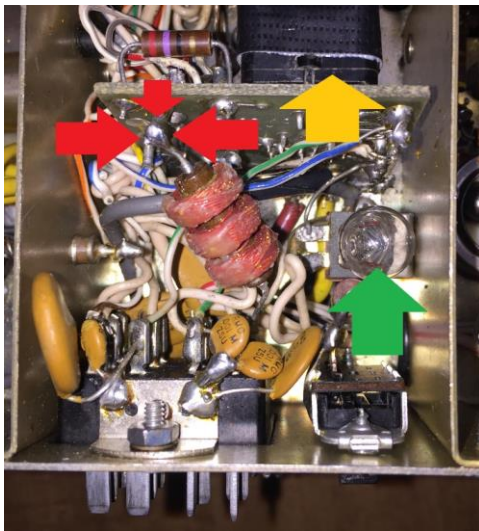
The world seemed to love Drake radios and design. This is proven in an offering from the Brazilian amateur radio equipment manufacturer, Eudgert.


Eudger Linha Ouro B Transceptor
Eudger Speaker/Power Supply

As they say, "Imitation is the sincerest form of flattery."

In a little personal note, my TR-4C Transceiver, MS-4 Speaker, and AC-4 Power Supply came from a ham in British Columbia. The RV-4C came from a friend of his in Ontario. The TR-4C worked intermittently when initially tried (after I upgraded the AC-4 Power Supply with new capacitors and diodes). I wanted to get the cabinets refinished so I sent the radio to a well-known Drake repair person. Upon return the cabinets were as perfect as new, the radio was as clean and nice as the day it left Drake. But, the transceiver only worked for the first day back. The intermittent operation had returned just as when I sent it. After a few days I decided to make my own repairs and made some interesting discoveries . . .

TR-4C Repairs . . . After returning to W9MXQ from a repair technician, the radio still became intermittent and then became intermittent more frequently. The issue was found after a study



of the schematic and the known symptoms. I felt it was related to the Low High Voltage (about 250 volts which is high voltage for lower level stages). After this analysis and the resulting determination of where to look, I measured voltage in active circuits in the radio and found that intermittent operation was tied to low or erratic 250-volt supply. Going from the 250-volt pin on the power supply connector – lower left in this picture I almost immediately found an intermittent, cold, solder joint at the radio side of the 250-volt input choke – in the center of the picture. The cold solder joint was at the point indicated by the three red arrows. For reference you can see the T/R relay (yellow arrow) and the series fuse lamp (receiver input line) (green arrow). Analysis with symptoms while looking at the schematic is a classic form of troubleshooting that reduces

functioning very well.

Moral of this story is . . . **"Repair your own radios."**

Drake, in about 1968, introduced a variant of the TR-4 for six-meters – the single band TR-6. The unit appears to have used much TR-4 hardware – even down to the final amplifier with its 6JB6 Sweep Tubes. The power capability of the TR-6 with those same tubes in the 50-54 MHz band was the same as on HF with the TR-4. Here are some pictures of the offering . . . the time necessary inside the radio. For me it determines the path to the solution before opening the radio cabinet.

Subsequent issues – after the radio was returned from the technician and after replacing

the final amplifier tubes – came to light with the radio when it started making “hissing noises.” That indicated arcing taking place somewhere. A bit of observation with the room lights switched off caused an interesting discovery – a grid to plate intermittent short in one of the final amplifier tubes. I replaced the defective 6JB6 tube and all is now



Drake TR-6 Transceiver



Drake TR-6 with the RV-6 External VFO

Note identical panel designs – missing only the LSB/USB Indicator Lamps. As you can also see, the silk screen was also unique to the TR-6 and RV-6.

Most accessories for the “4-Line” worked with the TR-6. But, the TR-6 had two of its own in the 9-NB Noise Blanker and the RV-6 External VFO, pictured above. I have had two TR-6 Transceivers over the years. These are a nicely built, work very well, and hold their own even on today’s bands. One omission in the line was a linear amplifier. But back in those days, a group of former Drake employees started Raytrack Company, in Columbus, Ohio, to make their own version of the Drake L-4B Linear Amplifier. They also had a six-meter version of that amplifier that was reasonably popular. The fact that it connected easily to the TR-6 was almost a given. Raytrack used two Eimac 3-500z triode amplifier tubes in both. I have wondered if Drake ever contemplated a six-meter version of the L-4B. But, it was a limited market.

The TR-6 was expensive. Better prices (but not better performance) came from Swan with the 250c Six-Meter Transceiver and the Heathkit SB-110A. (Not to be confused with the not so good, earlier versions from both companies – the Swan 250 and the Heathkit SB-110.)

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, W9MXQ@TWC.com.

Thanks to W9JI for loan of his TR-4 (that I hope to obtain) and to W9DYQ and K9DJT for proof-reading this article.

© **W9MXQ**

The entire article is available on-line, see

http://www.gars.org/newsletters/2021_09_GARZETTE.pdf

GARS Membership

New Members List in August

David Morris (KO4RIQ)
Angela Morris
Michael Ray (KO4SSU)

New Members: 3

**Total Members as of
AUG-31-2021 = 349**

Join GARS members for our weekly breakfast
gathering at
7:30 AM most Saturdays
Now at
Cracker Barrel Restaurant
75 Celebration Dr.
Suwanee, GA 30024

Birthdays in September

Karen Albritton (KI4HPP)
Mary Bachner (KE4MFZ)
Sherryl Bailey (N3MIU)
Larry Brinson (KO4IZU)
Jackson Britt (KM4PTV)
Richard Canova (KN4CGJ)
Ben Cullinan (KN4ZEX)
Pierre Decatrel (WB1EZK)
Russell Dickerson (KN4HAE)
James Drumm (N2FOF)
Jim Farmer (K4BSE)
Roger Gibson (WB4T)
Fred Hoefler (W3TLC)
Richard Kitz (KM4SWL)
Alex Kowalchuk (AK4AM)
Roinell Lewis (K4RNL)
Maria Lewis
Cal Ludwick (KM4VDA)
Charles Mcelhannon (KM4QVI)
Butch Seibert (N4EFX)
Donald Stewart (KW4AL)
John Stockinger (KC4RFK)
Richard Waigand (K4KME)
Carter Wood (AG4LK)
Carl Wulfestieg (WZ4CW)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message.

To become a GARS member, or to renew your GARS membership, please visit our website—
<http://www.gars.org>

To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please e-mail the Membership Committee - membership@gars.org

You can renew or update your Amateur Radio license information with the FCC at their website for free
<http://wireless.fcc.gov/uls/index.htm?job=home>

To update your ARRL information, please visit their website - <http://www.arrl.org>

Membership Chair: Karen Albritton, KI4HPP

Committee Members: Dave Bruse, W4DTR

Repeater Status

| | |
|---------|-------------------------------|
| 6M | Currently down |
| 147.075 | Operational in Snellville |
| 147.255 | Operational in Snellville |
| 224.580 | Operational in Grayson |
| 442.100 | Operational at Goshen Springs |
| 442.325 | Operational in Buford |
| 444.525 | Operational in Snellville |

Link remote receivers being added

Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Amazon Smiles;
- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

<http://gars.org/gars/donations-to-the-club>

GARS on Social Media



Discord Request:

<http://gars.org/discord>



Groups.io:

<http://gars.org/groups.io>



Visit GARS on Facebook:

<http://gars.org/facebook>



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<http://gars.org/twitter>













Join GARS on YouTube:

<http://gars.org/youtube>

Officers





| | | |
|------------------------------|--------|---|
| Joe Biddle, President | AD4PZ |  |
| Jamie Burns, Vice President | KX4HA |  |
| Bill Hawkins, Secretary | WR1TR |  |
| Pam Meridy, Treasurer | WB1AKQ |  |
| Kevin Scott, Program Manager | K4GTR |  |

Managers and Committee Chairs





| | | |
|--|--------|---|
| Karen Albritton, Membership Chair | KI4HPP |  |
| Dave Bruse, VE Team Leader | W4DTR |  |
| David Adcock, Webmaster and Field Day Chair | KA4KKF |  |
| Ralph Pickwick, Apparel Manager and Education Chair | KJ4CNC |  |
| Glen Wendt, TechFest Chair | W3WWT |  |
| Bob Hoffmann, GARzette Editor | K4CQO |  |
| Eddie Foust, Repeater Chair | WD4JEM |  |
| Mike Weathers, WAS / DXCC QSL Card Checker and Historian | ND4V |  |
| Chuck McCord, Net Manager | KK4TKJ |  |
| Steve Back, Technical / RFI Advisor | WB2OGY |  |

Winter Field Day Chair

Special Events Chairman

| | | |
|---|--------|---|
| Kyle Albritton, Multimedia Chair | W4KDA |  |
| Don Stewart, Elmer Manager | KW4AL |  |
| Sandy Jackson, Health and Wellbeing | KJ4DRO |  |
| Dave Slotter, Georgia QSO Party Chair, Workshop Leader and Public Information Officer | W3DJS |  |

Directors and Trustees

| | | | |
|---------------------|--|-----------------------------------|---|
| John Davis, WB4QDX |  | Rick Cobb, N4XY |  |
| Mike Weathers, ND4V |  | Bill Cherepy, WB4WTN W4GR Trustee |  |

GARS Meeting Minutes

Gwinnett Amateur Radio Society – GENERAL 8/10/2021

In person and online meeting.

President Joe Biddle (AD4PZ) and Opened the meeting at 7:10pm and closed the meeting at approximately 9:00pm

Participants: 28 in person – Unknown Online

Treasurer's Report: Pam (WB1AKQ)

New hams and visitors: Joe (AD4PZ)

- Recognized first time attendees in attendance and online.
- Recognized license upgrades.

Education: Ralph

- The general Ham Cram went well and all passed.
- McConnel Middle School open house was a great success.

Health and Well Being: Sandy (KK4RO)

- Best wishes to Don (KW4AL) injured with a broken arm.
- Requests for health and well being follow-ups should go to Sandy KK4RO@gmail.com

Membership: Karen (KI4HPP)

- Karen reported 346 members

Programs: Kevin (K4GTR)

- September – favorite web sites
- October – Show and tell

Workshop: Dave (W3DJS)

- August program – Steve (WB4OGY) will present on JOTA .
- The August program and others to follow will be online only until further notification.

Other Business:

- Paul (W4KLY) announced SEDX club "100 Watts and a Wire" contest coming up in September. Details at 100w.sedx.org

Program: Ruth KM4LAO presented satellite operations for hams.

Workshop Minutes - August 17, 2021

Number in Attendance: 21

Workshop Topic: RADIO Scouting and Jamboree on the Air (JOTA)

Presenter: Steve Back WB2OGY

Brief Summary: Steve's presentation and video explained RADIO Scouting, what the National and North East GA Councils do. He discussed how GARS has helped with Jamboree on the Air (JOTA) for many years.



Volunteers are needed to staff the JOTA event on October 16th from 9:00 AM – 4:00 PM at the VFW Post 5255, 368 Grayson Highway, Lawrenceville.

Door Prize Winners: Jim KD4PDY and Steve KI4IXR - 10\$ HRO Gift Certificates.

Submitted by: Dallas N4DDM

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar
> For more information click the links <

September 2021

TBD [EME - 2.3 GHz & Up](#)
11-13 [September VHF](#)
18-19 [10 GHz & Up - Round 2](#)

October 2021

18-22 [School Club Roundup](#)
TBD [EME - 50 to 1296 MHz](#)

November 2021

6-8 [Nov. Sweepstakes - CW](#)
20-21 [Nov. Sweepstakes - Phone](#)
TBD [EME - 50 to 1296 MHz](#)

December 2021

3-5 [160 Meter](#)
11-12 [10 Meter](#)
19 [Rookie Roundup-CW](#)
18-19 [EME - 50 to 1296 MHz](#)

January 2022

1 [Straight Key Night](#)
1 [Kid's Day](#)
8-9 [RTTY Roundup](#)
15-17 [January VHF Contest](#)

February 2022

14-18 [School Club Roundup](#)
19-20 [International DX – CW](#)

March 2022

5-6 [DX Contest -- SSB](#)

April 2022

10 [Rookie Roundup – Phone](#)

May 2022

No planned contests

June 2021

11-13 [June VHF](#)
18 [Kid's Day](#)
25-26 [Field Day](#)

July 2022

9-10 [IARU HF World Championship](#)

August 2022

6-7 [222 MHz and Up Distance Contest](#)
21-22 [10 GHz & Up – Round 1](#)
21 [Rookie Roundup – RTTY](#)

For more information:

<http://www.arrl.org/contest-calendar>

HAMFEST CALENDAR

[Please confirm the status of a Hamfest before making plans to attend. – Ed.]

09/11/2021 - Gadsden Amateur Radio Club Hamfest

Location: Attalla, AL
Type: ARRL Hamfest
Sponsor: Gadsden Amateur Radio Club

10/08/2021 - 10/09/2021

56th Annual Melbourne Hamfest, ARRL Florida State Convention

Location: Melbourne, FL
Type: ARRL Convention
Sponsor: Platinum Coast Amateur Radio Society
Website: <http://pcars.org>

10/08/2021 - 10/09/2021

North Okaloosa Amateur Radio Club Hamfest

Location: Crestview, FL
Type: ARRL Hamfest
Sponsor: North Okaloosa Amateur Radio Club
Website: <https://w4aaz.org/noarc-hamfest/>

10/16/2021 - Gulf Coast Amateur Radio Club

Location: New Port Richey, FL
Type: ARRL Hamfest
Sponsor: Gulf Coast Amateur Radio Club

10/23/2021 - Deep South Amateur Radio Club

Location: Chickasaw, AL
Type: ARRL Hamfest
Sponsor: Deep South Amateur Radio Club
Website: <http://k4dsr.com/>

11/06/2021 - 11/07/2021 - Stone Mountain Hamfest

Location: Lawrenceville, GA
Type: ARRL Convention
Sponsor: Alford Memorial Radio Club (AMRC)
Website: <https://www.stonemountainhamfest.com>

11/13/2021 - Sparc Fest

Location: Pinellas Park, FL
Type: ARRL Hamfest
Sponsor: St. Petersburg ARC

11/20/2021 - Montgomery ARC Hamfest

Location: Montgomery, AL
Type: ARRL Hamfest
Sponsor: Montgomery Amateur Radio Club
Website: <https://w4ap.org/marc/hamfest>

12/04/2021 - Silver Springs Radio Club 2021 Hamfest

Location: Ocala, FL
Type: ARRL Hamfest
Sponsor: Silver Springs Radio Club
Website: <http://k4gso.us>

For more information: <http://www.arrl.org/hamfests-and-conventions-calendar>

When searching by division, remember some states adjacent to GA are in different divisions:

Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC



The

| GARS Events Calendar for 2021 | | GARS Recurring Calendar |
|---|--|--|
| TechFest General HamCram Dog Show Fundraiser Georgia QSO Party North metro area Fox Hunt Spring Technician HamCram Memorial Day Parade ARC/KARC Hamfest Field Day Summer General HamCram Fall Technician HamCram JOTA Maker Faire Stone Mt. Hamfest Holiday Party | | Cancelled for 2021 TBD April 1-4 2021 April 10-11 2021 April 2021 April 2021 May 31 2021 Cancelled June 26-27 2021 TBD TBD October 16-17 2021 TBD November 6-7 2021 December 14 2021 |
| | | <ul style="list-style-type: none"> 2nd Tuesday of the month at 7 pm (except December): Monthly Club Meeting (online until further notice) 3rd Tuesday of the month at 7 pm (except December): Monthly Workshop (online until further notice) 2nd Sunday of the Month at 2 pm GARS Ham Exam Session 690 Airport Rd Lawrenceville, GA 30046 Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater Most Saturdays at 7:30 am : GARS Weekly Breakfast Cracker Barrel Restaurant 75 Celebration Dr., Suwanee, GA 30024 |
| GARS CALENDAR FOR September 2021 | | |

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|-------------------------------------|--|-----------|----------|--------|---|
| | | | 1 | 2 | 3 | 4 Breakfast at Cracker Barrel in Suwanee 7:30 AM |
| 5 | 6 7:30 – 8:00 PM GARS 2M Net | 7 7:00 PM GARS Exec Meeting (Online) | 8 | 9 | 10 | 11 Breakfast at Cracker Barrel in Suwanee 7:30 AM |
| 12 GARS VE Exam Session EAA 690 Hanger 2:00 PM | 13 7:30 – 8:00 PM GARS 2M Net | 14 7:00 PM GARS Meeting EAA 690 Hanger | 15 | 16 | 17 | 18 Breakfast at Cracker Barrel in Suwanee 7:30 AM |
| 19 | 20 7:30 – 8:00 PM GARS 2M Net | 21 7:00 PM GARS Workshop EAA 690 Hanger | 22 | 23 | 24 | 25 Breakfast at Cracker Barrel in Suwanee 7:30 AM |
| 26 | 27 7:30 – 8:00 PM GARS 2M Net | 28 | 29 | 30 | | |

Local Ham Radio Exams & Meetings

Local Ham Radio Exams

[Please check with each session contact for current status.—Ed.]

GARS publishes Metro Atlanta VE exam schedules as a service and is not responsible for errors or changes. Call and confirm schedules before going. All sessions are walk-in, unless otherwise noted. Take copies of current license and certificate of completed elements with you to all sessions. Find additional sessions online at <http://www.arrl-ga.org>

First Sunday, ODD Months

2 pm (Jan, Mar, May, Jul, Sep, & Nov)

VEC: WCARS

Braselton Public Utility Building

4986 Highway 53, Braselton, GA

Contact: Nat Christman K4VQ, 678-371-7103

christmans30680@gmail.com

First Sunday, EVEN Months

2 pm (Feb, Apr, Jun, Aug, Oct, Dec)

VEC: WCARS

Hall County EOC

470 Crescent Dr. Gainesville, Ga.

Contact: Perry Roper, KO4RD

(770) 536-3056

Second Saturday

10:00 AM

Alpharetta North Park, Adult Activities Center

13450 Cogburn Rd, Alpharetta, GA 30004

Contact: Ian Kahn, KM4IK

E-mail: km4ik.ian@gmail.com

Third Saturday, ODD Months

VEC: ARRL

9:30 am (Walk-ins welcome)

Stone Mountain Masonic Lodge

840 VFW Drive

Stone Mountain, GA 30083

Contact: Frank Haynes, KV4SP

Email: fhaynes@vatmom.net

(678) 467-3712

First Sunday, EVEN Months

VEC: WCARS and W5YI

2 pm @ Barrow Co. Emerg. Serv. Bldg

66 McElroy Street

Winder, GA 30680

Contact: Mike Wolcott, W4WYI

(404) 281-6581

E-mail: W4WYI@ARRL.net

Fourth Tuesday

ARRL VEC

7 pm @ United Way Service Center

6279 Fairburn Rd., Douglasville

Contact: Jessie Clower, KB4WFK

(770) 942-6466

Fourth Sunday

2:30 pm Georgia Tech

VanLeer Elec. Building

Rm. W218, 777 Atlantic Dr.

For more information go to www.w4aql.com and click on "Test Sessions"

GARS Ham Radio Exams

Second Sunday of the month

VEC: W5YI

2 pm At the EAA 690 Airport Hanger

Another excellent VE test session was held on Sunday, August 8, 2021. There were eight individuals who tested and all were successful passing exams as follows:

- One upgrade to General Class;
- Seven new Technician Class.

The VE group was well represented as usual. The following VEs helped to make this session a success and their dedication is appreciated:

- Pam, WB1AKQ
- Earl, AF4FG
- Richard, KM4SWL
- Frank, KV4SP
- Bill, WB4WTN
- Dave, W4DTR (CVE)
- Bob, K4CQO
- Russell, AB4QQ

73,

Don, KK4NJM (Co-CVE)

GARS VE Team Leaders

E-mail: exams@gars.org

GARS VE Website: <http://gars.org/exams> has location information and testing requirements.

Local Meetings

[Please check with each club for meeting schedule and method (online, etc.) - Ed.]

First Tuesday

Kennehoochee ARC

Fire Station #1, Training Room

112 Haynes Street, Marietta, GA

Meeting begins at 7:00pm

Talk In 146.880(-)

First Thursday

Atlanta Radio Club

Georgia Red Cross HQ

1955 Monroe Dr., Atlanta, GA

Meeting is at 7:30pm

Talk In -146.820(-)

N.E. Georgia ARC

Commerce Public Library

1344 South Broad Street, Commerce, GA

Meeting is at 6:30pm

Talk In - 147.225(+), PL 123.0

Second Monday

Georgia Tech ARC

Room W218

Van Leer Electrical Engineering Bldg.

Georgia Tech Campus

Meeting at 7:00pm

Sawnee Amateur Radio Association

Beaver Toyota

1875 Buford Highway, Cumming, GA

Meeting at 6:30

Second Thursday

Alford Memorial Radio Club

Annistown Road Baptist Church

Annistown Rd & Spain Rd

Stone Mountain, GA

Dinner at 6:00pm, Meeting at 7:30pm

Talk In - 146.760(-)

Second Saturday

North GA QRP Club

Board Room of The Shepherd Center

2020 Peachtree Rd, NW, Atlanta, GA

at 10:00 AM

Third Tuesday

North Fulton Amateur Radio League

Alpharetta Recreation & Parks Dept.

Alpharetta Adult Activity Center

13450 Cogburn Road, Alpharetta, GA

meeting at 7:30pm

Talk In - 145.47(-)

For more information, go to:

<https://nfarl.org/>

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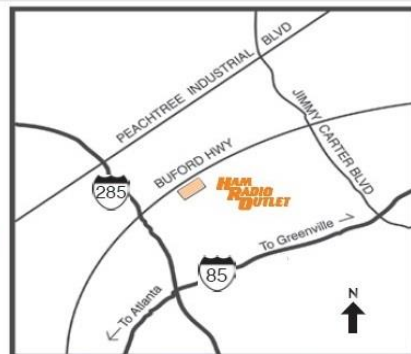
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Mid-Atlantic (800) 444-4799

New England (800) 444-0047

Manager:

Mark KJ4VO

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James KK4WNX

David AI4XL

Denise

Ken KI4BQS

Ray WN5FB

Koz KD3GC



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